

**SERVICE ESTIMATE, DESIGN REPORT AND CALCULATION OF
EXTERNAL DEVELOPMENT WORKS FOR (PHASE 4 &7) AT
SECTOR – 36A
GURUGRAM
HARYANA**

DEVELOPED BY

M/s. KRISUMI CORPORATION Pvt. Ltd.

REPORT

Gurugram town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at distance of 30 kms for Delhi. Being in the national capital Region, the town has fast developing tendency and potential. Further, it has also started sharing the growing Industrial load of Delhi. In order to relieve the growing pressure of population in the National Capital of Delhi, Haryana Urban Development Authority has already developed residential sector which are inhabited to an extent. Further to the increasing demand HSVP has planned to develop new sectors at outskirts of Gurugram town. This report and estimate for approval of 8.77707 acres Group Housing scheme in Sector-36A, Gurugram.

WATER SUPPLY

The source of water supply shall be HSVP water supply connection, augmented through tubewells & HSVP. As the underground water is potable, provision for two numbers (2W) of Bore wells as per calculation. It has been proposed to construct underground tanks of capacity as per attached details and at location for domestic purpose and for fire protection. The underground tanks will be fed from the bore wells and HSVP supply, from there water will be pumped to O.H. water tanks on the roof of the Buildings of Individual Towers.

DESIGN:

The scheme has been designed for the population considering -five persons per apartment for each main dwelling unit & 4 Sqm. Per person in school Building and 2 persons for each EWS. The rate of water supply per capita / day has been taken as (150+15%) i.e. 172.5 LPCD for main dwelling unit and EWS.

PUMPING EQUIPMENTS

It has been proposed to install pumping set as described with standby of equal capacity. Standby electric power requirement is added to the main DG Sets in case of electricity failure.

SEWERAGE SCHEME

This scheme is designed for sewer connecting to STP and by pass connection to HSVP sewer scheme.



Sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self cleaning velocity. Sewer line up to 700 mm dia has been designed to run half full and above 700 mm dia has been designed to run three fourth full at peak flow. Necessary provision for laying DWC pipe sewer line, construction of required number of manholes etc. have been made in the estimate.

Necessary design statement for entire sewerage system has been prepared and attached with estimate. Manning's formula has been used for the design of sewerage system.

STORM WATER DRAINAGE

We proposed to lay underground DWC pipe drains with required number of catch basins for disposal of storm water which will be connected to the Proposed HSVP storm drain on sector Road storm water line will be designed as per Manning's formula.

SPECIFICATIONS

The work will be carried out in accordance with the standard specifications of P.H as laid down by the Haryana Govt. / HSVP.

Roads :

Roads have been provided to above zones and estimate is prepared as per revised specifications adopted by HSVP.

Street Lighting

Provision for streets lighting also has been made in the estimate.

Horticulture

Estimates and details of plantation, landscaping, signage, etc., has been included.

Rates

The estimate has been prepared based on the present market rates.

Cost:

The total cost of the scheme, including cost of all services works out to be Rs. ~~1521.55/-~~ ^{1848.21} lakhs including 3% contingencies @ 49% departmental charges, price escalation, unforeseen & admin charges etc.

For Krisumi Corporation Private Limited.

Authorized signatory



I. DESIGN CALCULATION :

I. Summary of total water(As per water calculation Sheet)

(A) Total of domestic and flushing requirement	=	852 901 KLD
SAY	=	901 KLD 852
(B) Domestic requirement	=	579 KLD 550
(C) Flushing requirement	=	322 KLD 305
(D) Irrigation & Road washing	=	66 KLD

STP Capacity @ 80% of domestic & 100% of flushing water requirement (Exclusion of Horticulture, Water Body, Swimming Pool & Road Washing requirement) = 785 KLD
745

(E) Fire Fighting requirement	=	750 KL
TOTAL WATER DEMAND (B+C+D) (Excluding firefighting requirement)	=	579 + 322 + 66 = 927 KLD 921
SAY	=	970 KLD
(F) Total Fresh Water Demand	=	579 KLD 550

II. Summary & Source of water

(i) Domestic water (From Bore well / HSVP)	=	550 579 KLD
(ii) Flushing water (From STP)	=	322 KLD
(iii) Horticulture & Road Washing (From STP)	=	66 KLD
III. <u>Summary of UGT</u>		550
(i) Domestic water tank (One day requirement)	=	579 KLD
(ii) Firefighting water tank	=	750 KLD
(iii) Flushing & horticulture water tank (In STP)	=	388 KLD 370

Therefore, it is proposed to construct underground water storage capacity of Raw Water tank 290 KL, domestic water tank 290 KL for entire project and firefighting tank 750 KL for entire project at one location marked on plan.

III. BOREWELLS

(a) Approx. discharge from each bore well	=	30.00 KL/hr
(b) Operating time of bore wells	=	12 hrs/day
(c) Total yield from each bore well	=	30.00x12 = 360.00 KLD
(d) Total water requirement	=	550 579 KLD
(e) Number of bore wells	=	579 / 360.00 = 1.53 550

TOTAL	=	2.0 Nos.
SAY	=	2.0 Nos.



Since the entire water to the proposed development is to be supplied by IISVP so, it is proposed to install 2 numbers of bore-wells as supplementary source of water.

IV. PUMPING MACHINERY FOR BOREWELLS

Gross working head	=	80.00 mts.
Average fall in S.L.	=	03.05 mts.
Depression Head	=	06.10 mts.
Friction loss in main	=	03.05 mts
TOTAL	=	92.20 mts.
SAY	=	100.00 mts.

$$\text{HP} = \frac{30000 \times 100 \times 1}{60 \times 60 \times 75 \times 0.6} = 18.51 \text{ HP, SAY} = 20.00 \text{ HP (Each)}$$

Domestic Water Supply

(i) Pumping hour @ 10 hours /day	=	579 / 10 = 57.9 KL/hr
	=	916.67 965 lpm/3 = 321.66 lpm 305.55
SAY	=	325 325 lpm (3W + 1S)
	=	305
SAY FOR TOWERS	=	375 375 lpm (2W+1S)
SAY FOR EWS	=	166 166 lpm (1W+1S)
SAY FOR SCHOOL.	=	50 lpm (1W+1S)

BOOSTING MACHINERY FOR DOMESTIC PUMP (TOWER)

(ii) Gross working head	=	6.5 meter
(iii) Suction lift	=	26.5 meter
(iv) Friction loss	=	160 meter
(v) Clear head required	=	193 meter
TOTAL	=	200.00M
SAY	=	22.96 22.22 HP, SAY = 25 HP (Each)
(vi) HP	=	316 316 x 200 / 60x75x0.6

It is proposed to provide 4 Nos (3Working + 1 Stand by) of pumping sets of 325 lpm discharge at 200 Mtr. Head for Domestic Supply.

Flushing & Irrigation Water Supply

(i) Pumping hour @ 10 hours /day	=	388 / 10 = 38.8 KL/hr
	=	616.67 646.66/2 lpm = 323.25 308.33
SAY	=	310 325 lpm (2W + 1S)
SAY FOR TOWERS	=	250 lpm(2W+1S)
SAY FOR EWS	=	100 lpm(1W+1S)
SAY FOR SCH. & DISP.	=	50 lpm(1W+1S)

BOOSTING MACHINERY FOR FLUSHING PUMP (TOWER)

(ii) Gross working head	=	6.50 meter
(iii) Suction lift	=	



- (iv) Friction loss = 26.50 meter
(v) Clear head required = 160 meter
TOTAL = 193 meter
SAY = 200.00M
- (vi) HP = $\frac{315 \times 200}{60 \times 75 \times 0.65} = 22.96$ HP, SAY = 25 HP (Each)

It is proposed to provide 2 Nos (2 Working + 1 Stand by) of pumping sets of 315 lpm discharge at 200 Mtr. Head for Flushing Supply.

PUMPS FOR FIRE PROTECTION

S.N O.	PARAMETERS	LOCATIO N	PUMP SETS					TOWER-6 Terrace
			JOCKEY	MAIN	DIESEL	SPRINKLE R	CURTAIN	
1.		Pump room						
(a)	Discharge in lpm		180	2850	2850	2850	2850	2850
(b)	Head in meters		125/175/200, 60	125/175/220	125/175/220m, 60 M	125/175/220m	60m	60m
(c)	HP		17	264	264	264	70	70
(d)	Quantity in nos		2+2	2	2+1	2	2	2

CAPACITY OF DG SETS.

S.NO.	EQUIPMENT	QTY	HP	TOTAL HP
1	BOREWELL	2	20	40
2	FIRE JOCKEY	Already Considered Earlier		
3	DOMESTIC PUMPS (1 SET)	4 (3W+1S)	3x25	75
4	FLUSHNG & IRRIGATION PUMPS (1 SET)	3 (2W+1S)	2x25	50
	STP			150
	EXTERNAL LIGHTING			15
	TOTAL			330
				245.85 kW
		SAY		366 KVA
				400 KVA

It is proposed to add 400 KVA capacities for above said machinery to the main DG set.



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

FINAL ABSTRACT OF COST

Description		Amount In (Lacs)
Sub Work-1		
Water Supply		Rs 529.13
Sub Work-2		
Sewerage		Rs 271.78
Sub Work-3		
Drainage		Rs 152.65
Sub Work-4		
Street Lighting		Rs 33.68
Sub Work-5		
Road Works		Rs 434.24
Sub Work-6		
Plantation & Road side Trees		Rs 12.45
Sub Work-7		
Including maintenance charge for 10 years Services & Resurfacing of road		Rs 414.28
TOTALS		Rs. 1,848.21
Total Area(Acre)	Rs. 8.7707	
Cost per Acre (In Lacs)	Rs. 210.73	



Superintending Engineer,
HSVP Circle-I, Gurugram



Executive Engineer
HSVP Division No. VI
Gurugram

VI
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Checked subject to Comments
In forwarding letter No. 129175
Dt. 23/04/25 and notes
Attached with the estimate

Director
Town & Country Planning
Haryana, Chandigarh

Executive Engineer (M)
for Chief Engineer-I
HSVP, Panchkula

PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA			
SUB WORK No. 1			WATER SUPPLY
S No.	Heads	Description	Amount (INR) (Lakh)
	SUB HEAD 1	Water Supply Work	163.74 Rs 140.58
1	SUB HEAD 2	Rising Mains	4.99 Rs
2	Sub Head 02	Pumping and Machinery	96.99 Rs 178.18
3	Sub Head 03	Domestic Water supply and External Fire-fighting & Fire Hydrant	125.87 Rs 127.46
4	Sub Head 04	Flushing/Irrigation Water Supply System	77.22 Rs 77.92
GRAND TOTAL IN LAKH			468.84 Rs 529.13

c.o. to final abstract of work



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA		
SUB WORK No. 1		WATER SUPPLY
SUB HEAD 1		Water Supply Work
S No.	Description	Amount (INR)
1	Boring and installing 510 mm i/d tube wells with reverse rotary ring complete with pipe and strainer to a depth of about 80 m in all respect	
a)	2 Nos. @ Rs. 10,00,000 Each	20,00,000.00
2	Construction of pump chamber as per standard design of HSVP	
a)	2 Nos. @ Rs. 3,00,000 Each	6,00,000.00
3	Construction of boosting chamber of suitable sizing along with underground tank of capacity 970 KLD excluding fire tank (as already considered in earlier Phase), pumping machinery, gen set etc. complete in alrespect Details of boosting station.	
i	Cost of boosting chamber (L/S)	4,00,000.00
ii	Underground tanks 970 KL excluding 750 KL fire tanks (as already considered in earlier Phase)	53,35,000.00
iii	388 KL flushing water storage tanks at 2 locations @ 5500/ KL	21,34,000.00
4	Provision for staff working station for maintenance.(As already considered in earlier phases)	0.00
5	Provision for carriage of materials and other unforeseen items	1,00,000.00
TOTAL OF SUB HEAD 1, CARRIED OVER TO SUMMARY OF SUB WORK - 1		1,06,69,000.00
ADD 3% CONTIGENCY & PE CHARGES		3,20,070.00
TOTAL		1,09,89,070.00
ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.		53,84,644.30
TOTAL OF SUB HEAD 1		1,63,73,714.30
TOTAL OF SUB HEAD 1 (In Lakh)		Rs. 163.74 Lacs



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA		
SUB WORK No. 1		WATER SUPPLY
SUB HEAD 2		Rising Mains
S No.	Description	Amount (INR)
1	1. Providing, laying, jointing and testing DI (K-7) pipe lines from HUDA/HSVP/GMDA Including cost of excavation etc. complete in all respects.	
a)	100 mm dia pipe 255 Mtr. @ Rs. 1,460 Per Meter	Already Considered in Earlier Phase
2	Providing and fixing Butterfly valve including cost of surface boxes and masonry chambers etc. complete in all respects	
a)	100 mm dia 1 Nos. @ Rs. 12,000 Each	
3	Providing and fixing indicating plates for valve and air valves	
a)	2 Nos. @ Rs. 2,000 each	
4	Provision for carriage for materials and other unforeseen items (L/S)	25,000.00
5	Provision for cutting of roads and making good to its original conditions (L/S)	1,00,000.00
6	Provision for making water connection with HSVP (L/S) on Master Road	2,00,000.00
TOTAL OF SUB HEAD 2 CARRIED OVER TO SUMMARY OF SUB WORK - 1		3,25,000.00
ADD 3% CONTINGENCY & PE CHARGES		9,750.00
TOTAL		3,34,750.00
ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.		1,64,027.50
TOTAL OF SUB HEAD 2		4,98,777.50
TOTAL OF SUB HEAD 2(In Lakh)		Rs. 4.99 Lacs



SUB WORK No. 1		WATER SUPPLY & FIRE FIGHTING SYSTEM			
Sub Head 3		Pumping and machinery			
S No.	Description			Amount (INR)	
1	Providing & installing pumping set of following capacity for Water supply Booster Pumps				
a)	Filter Feed Pump of Capacity 325 LPM @ 35 mtr. Head, 5.0 HP each (3W+1S)		Nos. @	Rs. 1,00,000.00	each.
b)	Hydropneumatic Pumping Capacity 325 LPM @ 200mtr. Head, 25 HP (2W+1S) for Towers		Nos. @	Rs. 5,00,000.00	each.
c)	Water transfer Pumping Capacity 150 LPM @ 80mtr. Head, 5 HP (1W+1S) for EWS		Nos. @	Rs. 1,00,000.00	each.
d)	Hydropneumatic Pumping Capacity 50 LPM @ 50mtr. Head, 1.5 HP (1W+1S) for Nursery Schools		Nos. @	Rs. 30,000.00	each.
2	Providing & installing pumping set of following capacity for Flushing/Irrigation Pumps				
a)	Hydropneumatic Pumping Capacity 250 LPM @ 200mtr. Head, 30 HP (2W+1S) for Flushing for Towers		Nos. @	Rs. 5,00,000.00	each.
b)	Water transfer Pumping Capacity 100 LPM @ 80mtr. Head, 3 HP (1W+1S) for EWS		Nos. @	Rs. 90,000.00	each.
c)	Hydropneumatic Pumping Capacity 50 LPM @ 50mtr. Head, 1.5 HP (1W+1S) for Nursery Schools		Nos. @	Rs. 30,000.00	each.
d)	Hydropneumatic Pumping Capacity 200 LPM @ 40 mtr. Head, 3 HP (1W+1S) for Irrigation		Nos. @	Rs. 1,50,000.00	each.
e)	Hydropneumatic Pumping Capacity 150 LPM @ 40 mtr. Head, 3 HP (1W+1S) for DG Cooling Towers		Nos. @	Rs. 1,00,000.00	each.
3	Provisions for chlorination plant complete		1	Nos. @	Rs. 1,00,000.00 L/s
4	Providing & installing pumping set of following capacity for fire-fighting Pumps				
a)	Electrical Operated MSMO Fire Hydrant Pump @ 2850 LPM discharge & 220m Head, 265 HP (UG Fire Pump room)		Nos. @	Rs. 10,00,000.00	each.
b)	Electrical Operated MSMO Sprinkler Pump @ 2850 LPM discharge & 220m Head, 265 HP (UG Fire Pump room)		Nos. @	Rs. 10,00,000.00	each.
c)	Electrical Operated MSMO Jockey Pump @ 180 LPM discharge & 220m Head, 15 HP (UG Fire Pump room)		Nos. @	Rs. 2,50,000.00	each.
d)	Electrical Operated Water Curtain Pump @ 2850 LPM discharge & 65m Head, 80 HP (UG Fire Pump room)		Nos. @	Rs. 10,00,000.00	each.
e)	Diesel Operated MSMO Fire Pump @ 2850 LPM discharge & 220m Head, 255 HP (UG Fire Pump room)		Nos. @	Rs. 13,00,000.00	each.
f)	Electrical Operated Fire Hydrant Pump @ 2850 LPM discharge & 50m Head, 61 HP (Tower-6 Terrace)		Nos. @	Rs. 7,50,000.00	each.
g)	Electrical Operated Sprinkler Pump @ 2850 LPM discharge & 50m Head, 61 HP (Tower-6 Terrace)		Nos. @	Rs. 7,50,000.00	each.
h)	Electrical Operated Jockey Pump @ 180 LPM discharge & 50m Head, 7.5 HP (Tower-6 Terrace)		Nos. @	Rs. 1,50,000.00	each.
i)	Diesel Operated Fire Pump @ 2850 LPM discharge & 50m Head, 61 HP (Tower-6 Terrace)		Nos. @	Rs. 10,00,000.00	each.
j)	Electrical Operated Fire Hydrant Pump @ 2850 LPM discharge & 210m Head, 255 HP (UG Fire Pump room for filling OH Fire tanks of Tower-6-1W+1Sb)		Nos. @	Rs. 10,00,000.00	each.

Already Considered in Earlier Phase



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA		
SUB WORK No. 1		WATER SUPPLY
Sub Head 4		Domestic Water supply and External Fire-fighting & Fire Hydrant
S No	Description	Amount (INR)
1	Providing, laying, jointing and testing GI Medium Duty / DI pipe lines including fittings, cost of painting etc. complete in all respects. (For Domestic Water Distribution in basement ceiling)	
		23,400.00
a)	32 mm Pipe 52 Mtr @ Rs. 450	0.00
b)	40 mm Pipe 0 Mtr @ Rs. 568	0.00
c)	50 mm Pipe 0 Mtr @ Rs. 763	
d)	65 mm Pipe 149 Mtr @ Rs. 956	1,42,444.00
e)	80 mm Pipe 96 Mtr @ Rs. 1,263	1,21,248.00
f)	100 mm Pipe 1086 Mtr @ Rs. 1,460	15,85,560.00
g)	150 mm Pipe 40 Mtr @ Rs. 1,786	71,440.00
2	Providing, laying, jointing and testing MS Class C pipe lines including fittings, cost of excavation etc. complete in all respects. (For External Fire fighting)	
a)	150 mm Pipe 1560 Mtr @ Rs. 2,040	31,82,400.00
b)	100 mm Pipe 103 Mtr @ Rs. 1,460	1,50,380.00
c)	80 mm Pipe 1151 Mtr @ Rs. 1,000	11,51,000.00
3	Providing and fixing valve including cost of surface boxes and masonry chambers etc. complete in all respects.	
a)	150 mm 8 Each @ Rs. 15,000	1,20,000.00
b)	100 mm 4 Each @ Rs. 12,000	48,000.00
b)	80 mm 0 Each @ Rs. 8,000	0.00
b)	32 mm 0 Each @ Rs. 5,000	0.00
4	Providing and fixing External Fire Hydrant complete in all respect.	
	68 Nos @ Rs. 15,000 Each	10,20,000.00
5	Providing and fixing Air release valve and scour valves.	
	5 Nos @ Rs. 10,000 Each	50,000.00
6	Provision for carriage of materials and other unforeseen items	2,00,000.00
7	Provision for cutting of roads on making good to its original condition. (L.S)	2,00,000.00
8	Provision for indicating plates for sluice valve as F.H.	
	68 Nos @ Rs. 2,000 Each	1,36,000.00
TOTAL OF SUB HEAD 4, TOTAL CO to SUB WORK - 1		82,01,872.00
ADD 3% CONTINGENCY & PE CHARGES		2,46,056.16
TOTAL		84,47,928.16
ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.		41,39,484.80
TOTAL OF SUB HEAD 4		1,25,87,412.96
TOTAL OF SUB HEAD 4(In Lakh)		Rs. 125.87 Lacs



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUB WORK No. 1

WATER SUPPLY

Sub Head 5

Flushing/Irrigation System

S No.	Description	Amount (INR)
1	Providing, laying, jointing and testing GI Medium Duty / DI pipe lines including fittings, cost of painting etc. complete in all respects. (For Flushing Water Distribution in basement ceiling)	
a)	25 mm Pipe 52 Mtr @ Rs. 386 300	20,072.00
b)	32 mm Pipe 52 Mtr @ Rs. 450	23,400.00
c)	40 mm Pipe 0 Mtr @ Rs. 568	0.00
d)	50 mm Pipe 0 Mtr @ Rs. 763	0.00
e)	65 mm Pipe 149 Mtr @ Rs. 956 675	1,42,444.00
f)	80 mm Pipe 96 Mtr @ Rs. 1,263 1250	1,21,248.00
g)	100 mm Pipe 1086 Mtr @ Rs. 1,460 ✓	15,85,560.00
h)	150 mm Pipe 40 Mtr @ Rs. 1,786 2040	71,440.00
2	Providing and fixing uPVC agricultural pipes conforming to IS:4985 class IV (10 kg/cm ²) including excavation, refilling, all fittings, e.g. couplings, tees, bends, reducers and screwed adoptors, solvent welded joint as per manufacturers' recommendations. (For Garden Hydrant Water Supply)	
a)	25 mm OD 0 Mtr @ Rs. 200	0.00
b)	32 mm OD 59 Mtr @ Rs. 450	26,550.00
c)	40 mm OD 49 Mtr @ Rs. 536 500	26,264.00
d)	50 mm OD 137 Mtr @ Rs. 685 580	93,845.00
e)	63 mm OD 75 Mtr @ Rs. 726 675	54,450.00
f)	80 mm OD 1398 Mtr @ Rs. 923 1000	12,90,354.00
g)	110 mm OD 537 Mtr @ Rs. 1,250	6,71,250.00
3	Providing and fixing valve including cost of surface boxes and masonry chambers etc. complete in all respects.	
a)	150 mm 4 Each @ Rs. 15,000 12,000	52,000.00
b)	100 mm 2 Each @ Rs. 11,000 10,000	26,000.00
c)	80 mm 4 Each @ Rs. 10,000 8,000	48,000.00
d)	65 mm 0 Each @ Rs. 10,000	0.00
e)	40 mm 0 Each @ Rs. 8,000	0.00
f)	32 mm 0 Each @ Rs. 5,000	0.00
g)	25 mm 150 Each @ Rs. 850 800	1,27,500.00
4	Providing and fixing Garden Hydrant 100 Nos. @ Rs. 5,000 each	5,00,000.00
5	Providing and fixing air release valve and scour	
	L.S.	50,000.00



6	Provision for carriage of materials and other unforeseen items	1,00,000.00
	TOTAL OF SUB HEAD 4, TOTAL CO to SUB WORK - 1	50,31,377.00
	ADD 3% CONTINGENCY & PE CHARGES	1,50,941.31
	TOTAL	51,82,318.31
	ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.	25,39,335.97
	TOTAL OF SUB HEAD 4	77,21,654.28
	TOTAL OF SUB HEAD 4(In Lakh)	Rs. 77.22 Lacs

77.92



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA					
SUB WORK No. 2				SEWERAGE SCHEME	
S No.	Description				Amount (INR)
1	Providing, Lowering, jointing and cutting DWC IS: 16098 (Part-2) pipe lines into trenches including cost of Manholes & Cost of excavation etc. complete in all respects as per standard section.				
a)	150 mm dia	190 Mtr.	@ Rs. 2,040	HDPE Pipe (PN-6) IS:4984 (STP Bypass Line)	3,87,600.00
b)	150 mm dia	Mtr.	@ Rs. 2,040	DWC Pipe	0.00
c)	200 mm dia	798 Mtr.	@ Rs. 2,500	DWC Pipe	19,95,000.00
d)	250 mm dia	198 Mtr.	@ Rs. 2,880	DWC Pipe	5,64,480.00
e)	300 mm dia	288 Mtr.	@ Rs. 4,350	DWC Pipe	12,44,100.00
f)	400 mm dia	348 Mtr.	@ Rs. 5,689	DWC Pipe	19,74,083.00
2	Provision for carriage of material (L.S)				5,00,000.00
3	Provision for making connection with HSVP sewer line.				2,00,000.00
4	STP -Electro Mechanical work		@ Rs. 1,250	PER KLD	
a)	Providing STP (Towers) of	745 KLD			8,87,500.00
b)	Providing STP (EWS) of	150 KLD			1,87,500.00
c)	Providing STP (Schools & Dispensary) of	80 KLD			0.00
5	Provision for providing oblique function. (L.S)				1,00,000.00
6	Provision for Temporary timbering & Road Cut carries (L.S)				2,50,000.00
7	Provision for providing vent shaft at suitable places as per P.H. requirements (L.S.)				2,00,000.00
8	Provision of jointing, cutting and testing stoneware pipe grade -A and lowering into trench including cost of excavation, bed concrete, cost of manhole etc.				
i	200 mm dia.	295 Mtr.	@ Rs. 1,700		5,01,500.00
ii	250 mm dia.	485 Mtr.	@ Rs. 2,000		3,70,000.00
TOTAL CO to FINAL ABSTRACT OF QUANTITY					87,61,763.00
ADD 3% CONTINGENCY & PE CHARGES					2,62,852.89
TOTAL					90,24,615.89
ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.					44,22,061.79
GRAND TOTAL					1,34,46,677.68
TOTAL CO to FINAL ABSTRACT(In Lakh)					Rs. 134.47 Lacs



119.20 lacs

177.09

S-31

182.40

89.38

271.78

PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA		
SUB WORK No. 3		STORM WATER DRAINAGE
S No.	Description	Amount (INR)
1	Providing, Lowering, jointing and cutting DWC IS: 16098 (Part-2) /RCC NP-3 pipe lines into trenches including cost of Manholes & Cost of excavation etc. complete in	22,16,214.00 22.23
a)	200 mm dia 1357 Mtr. @ Rs. 1,638	3,64,965.00 3.97
b)	250 mm dia 201 Mtr. @ Rs. 1,965	7,00,752.00 7.93
c)	300 mm dia 312 Mtr. @ Rs. 2,246	13,50,000.00
d)	400 mm dia 540 Mtr. @ Rs. 2,500	5,72,400.00
e)	500 mm dia 212 Mtr. @ Rs. 2,700	0.00 4.50
f)	600 mm dia 180 Mtr. @ Rs. 2,956 3000L	
2	Provision for lighting and watching L.S.	3,50,000.00 3.50
3	Provision for road gullies & connecting pipe L.S.	5,00,000.00 5.00
4	Provision for rainwater harvesting arrangements with Desilting chamber at suitable places. (7 nos@350000)	24,50,000.00
5	Provision for timbering & shoring (L.S.)	1,00,000.00 1.00
6	Provision for making connection with HSVP Mains on master road and making good to its original condition (L.S.)	4,50,000.00 4.50
7	Provision of temporary disposal arrangement till HSVP services are provide	3,00,000.00
TOTAL CO to FINAL ABSTRACT OF QUANTITY		53,72,400.00 99.47
ADD 3% CONTINGENCY & PE CHARGES		1,61,172.00 2.98
TOTAL		55,33,572.00 102.45
ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.		27,11,450.28 50.20
GRAND TOTAL		82,45,022.28 152.65
TOTAL CO to FINAL ABSTRACT(In Lakh)		Rs. 82.45 Lacs



Street Lighting

PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA					
SUB WORK No. 4			STREET LIGHTING		
S.No.	Discription	UM	Qant.	Rate	Amount
1	Providing street lighting on roads as per standard specification of HSVP.	Acre	8.777	250000	2194250
	TOTAL CO to FINAL ABSTRACT OF QUANTITY				2194250.0
	ADD 3% CONTIGENCY & PE CHARGES				65827.5
	TOTAL				2260077.5
	ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.				1107438.0
	GRAND TOTAL				3367515.5
	TOTAL CO to FINAL ABSTRACT(In Lakh)				Rs. 33.68 Lacs



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUB WORK No. 5					ROAD WORK	
	Width in meter	length in meter	Metalled Portion	Area in Sqm.		
	6	720.0	6.0	4320		
	7.5	1096.0	7.5	8220		
	12	48.9	5.5	269		
				0		
				0		
	Total	1865		12809		
	Add 5% for curves	93.24	Add 5% for curves	640		
	Grand Total	1958.13	Total Area	13449		
	SAY	1960		13450		
S No.	Description					Amount (INR)
1	Provision for leveling & earth filling as per site condition					
	Approx	8.777 Acre	@ Rs. 1,75,000	per acre		Rs. 15,35,975
2	Preparation of sub grade by excavating to an average depth of 10", dressing to camber and consolidation with road roller including making good undulations etc.					
a	200 mm GSB					
b	250 stone Aggregates					
c	50 mm DBM					
d	Paver 60 mm thick, complete in all respects					
		13450 Sqm	@ Rs. 1,500.00	per sqm		Rs. 2,01,75,000
3	Providing of kerbs stone chanel of CC1:2.5:5(kerb stone chanel as per standard design)					
	1865	5%	1958 m	@ Rs. 600 /M		Rs. 11,74,881
4	Provision for guide map and other unforeseen item L.S					Rs. 1,50,000
5	Provision for plot indicators L.S					Rs. 25,000
6	Provision for demarcating burgies L.S					Rs. 60,000
7	Provision for traffic arrangement L.S					Rs. 2,00,000
8	Provision for carriage of material & unforeseen items L.S					Rs. 3,00,000
9	Construction of Footpath as per specifications for approach to each block L.S. Parking etc.					Rs. 5,00,000
	TOTAL CO to FINAL ABSTRACT OF QUANTITY					2,41,30,855.70
	ADD 3% CONTINGENCY & PE CHARGES					7,23,925.67
	TOTAL					2,48,54,781.37
	ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.					1,21,78,842.87
	GRAND TOTAL					3,70,33,624.24
	TOTAL CO to FINAL ABSTRACT(In Lakh)					Rs. 370.34 Lacs



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUB WORK No. 6

Plantation & Road side Trees

S No.	Description	Amount (INR)
1	Development of Green areas	
a	Trenching the ordinary soil up to dept of 60 cm including removal and stacking of serviceable material and disposing of by spreading and leveling within a lead to 50m and making up the trenches area of proper leads by filling with earth mixed with manure before and after flooding trench with water including cost of imported earth and manure	
b	Rough dressing of roof area	
	Grassing with "Doob Grass" including watering and maintenance of lawns for 30 days till the grass a thick lawn, free weeds and fit for moving In rows 7.5m apart in either direction including provision for hedges and barbed wire fencing around park.	
	Approx. 1.246938 Acres Rs. 1,50,000 per Acres	2.50 lacs 1,87,040.66
2	Planting Tree	
a		5.62
	243 Trees @ Rs. 2,310 per tree	5,61,330.00
b	Provision of trees, along 6,7.5, 12 M wide roads at 12 Mtr intervals. Both side	
	0 Trees @ per tree	0.00
	TOTAL CO to FINAL ABSTRACT OF QUANTITY	8.12 lacs 7,48,370.66
	ADD 3% CONTIGENCY & PE CHARGES	0.24 lacs 22,451.12
	TOTAL	8.36 7,70,821.78
	ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.	4.60 3,77,702.67
	TOTAL CO to FINAL ABSTRACT OF QUANTITY	12.95 lacs 11,48,524.45
	TOTAL CO to FINAL ABSTRACT(In Lakh)	Rs. 11.49 Lacs 12.45



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUB WORK No. 7

M/C Charges for Services & Resurfacing of road

S No.	Description	Amount (INR)
1	Provision for M/C charges for water supply , storm water drainage, sewerage, Road, Street lighting, Horticulture etc. complete in all aspect, including Operational and establishment charges as per HSVP norms for 10 years completion	70.22 lacs
	8.777 Acres Rs. 8,00,000	70,21,600.00
2	Provision for resurfacing of roads after 1st 5 years of maintainance	88.77 lacs
	13450 13,715.00 Rs. 660	90,51,900.00
3	Provision for resurfacing of roads after 10 years of maintainance	110.96 lacs
	Approx. 13450 13715 Sqm @ Rs. 825 per Sqm	1,13,14,875.00
	TOTAL CO to FINAL ABSTRACT OF QUANTITY	269.95 2,73,88,375.00
	ADD 3% CONTINGENCY & PE CHARGES	8.09 8,21,651.25
	TOTAL	278.04 2,82,10,026.25
	ADD 49% DEPARTMENTAL, PRESCRIPTION, UNFORESEEN, ADMIN CHARGE.	136.24 1,38,22,912.86
	TOTAL CO to FINAL ABSTRACT OF QUANTITY	414.28 4,20,32,939.11
	TOTAL CO to FINAL ABSTRACT(In Lakh)	Rs. 420.33 Lacs



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA
SUBJECT: WATER DEMAND CALCULATION SHEET

S.No.	Description	Nos. of Units	Nos. of Floors	Total Units	Population As Per NBC -		Water Requirement		Total Water		Flow to Sewer (100% Flushing + 80% Domestic)
					Population As Per NBC - 2016/ As per DTCP Approval	TOTAL	Flushing Water	Domestic Water	Flushing Water	Domestic Water	
						NO.	LPCD	LPCD	LPD	LPD	LPD
1	TOWER - 4.1										
A	FIRST FLOOR										
	3 BHK	6	1	6	5	30	60.5	112	1815	3360	4503
B	TYPICAL FLOOR										
	3 BHK	6	36	216	5	1080	60.5	112	65340	120960	162108
C	REFUGE FLOOR										
	2 BHK	1	3	3	5	15	60.5	112	907.5	1680	2252
	3 BHK	5	3	15	5	75	60.5	112	4537.5	8400	11258
D	PENTHOUSE UNIT 41842	4		4	5	20	60.5	112	1210	2240	3002
2	TOWER - 4.2										
A	FIRST FLOOR										
	4 BHK	4	1	4	5	20	60.5	112	1210	2240	3002
B	TYPICAL FLOOR										
	4 BHK	4	33	132	5	660	60.5	112	39930	73920	99066
C	REFUGE FLOOR										
	4 BHK	3	3	9	5	45	60.5	112	2722.5	5040	6755
	3 BHK	1	3	3	5	15	60.5	112	907.5	1680	2252
D	35TH FLOOR(BHK UNIT)										
	4 BHK	2	1	2	5	10	60.5	112	605	1120	1501
E	PENTHOUSE UNIT 41842	4		4	5	20	60.5	112	1210	2240	3002
3	TOWER - 4.3										
A	FIRST FLOOR										
	4 BHK	4	1	4	5	20	60.5	112	1210	2240	3002
B	TYPICAL FLOOR										
	4 BHK	4	30	120	5	600	60.5	112	36300	67200	90060
C	REFUGE FLOOR										
	4 BHK	3	3	9	5	45	60.5	112	2722.5	5040	6755
	2 BHK	1	3	3	5	15	60.5	112	907.5	1680	2252
D	35TH FLOOR(BHK UNIT)										
	4 BHK	2	1	2	5	10	60.5	112	605	1120	1501
E	PENTHOUSE UNIT 41842	4		4	5	20	60.5	112	1210	2240	3002
4	TOWER - 7.1										
A	FIRST FLOOR										
	4 BHK	4	1	4	5	20	60.5	112	1210	2240	3002
B	TYPICAL FLOOR										
	4 BHK	4	32	128	5	640	60.5	112	38720	71680	96064
C	REFUGE FLOOR										
	4 BHK	3	3	9	5	45	60.5	112	2722.5	5040	6755
	3 BHK	1	3	3	5	15	60.5	112	907.5	1680	2252
D	37TH FLOOR(BHK UNIT)										
	4 BHK	2	1	2	5	10	60.5	112	605	1120	1501
E	PENTHOUSE UNIT 41842	4		4	5	20	60.5	112	1210	2240	3002
5	TOWER - 7.2										
A	FIRST FLOOR										
	4 BHK	4	1	4	5	20	60.5	112	1210	2240	3002
B	TYPICAL FLOOR										
	4 BHK	4	32	128	5	640	60.5	112	38720	71680	96064
C	REFUGE FLOOR										
	4 BHK	3	3	9	5	45	60.5	112	2722.5	5040	6755
	3 BHK	1	3	3	5	15	60.5	112	907.5	1680	2252
D	PENTHOUSE UNIT 41842	4		4	5	20	60.5	112	1210	2240	3002
6	EWS Block										
	EWS Unit			148	2	296	60.5	112	17808	23152	44430
	Visitors S. Personal			392	2	784	60.5	112	47432	87808	117678
	(10% of Total EWS Population)			157	2	314	60.5	112	18550	23152	44430
7	PRIMARY SCHOOL										
I	GROUND FLOOR	390.53			4 M2/PERSON	98	25	20	2441	1953	4003
II	1ST FLOOR	385.09			4 M2/PERSON	96	25	20	2407	1925	3947
III	2ND FLOOR	385.09			4 M2/PERSON	96	25	20	2407	1925	3947
IV	3RD FLOOR	385.09			4 M2/PERSON	96	25	20	2407	1925	3947
8	NURSERY SCHOOL										



S.No.	Description	Nos. of Units	Nos. of Floors	Total Units	Population As Per NBC -		Water Requirement		Total Water		Flow to Sewer (100% Flushing + 80% Domestic)
					Population As Per NBC - 2016/ As per DTCP Approval	TOTAL	Flushing Water	Domestic Water	Flushing Water	Domestic Water	
						NO.	LPCD	LPCD	LPD	LPD	
I	GROUND FLOOR	271.83			4 M2/PERSON	68	25	20	1699	1359	2786
II	1ST FLOOR	271.83			4 M2/PERSON	68	25	20	1699	1359	2786
IV	2ND FLOOR	271.83			4 M2/PERSON	68	25	20	1699	1359	2786
III	3RD FLOOR	271.83			4 M2/PERSON	68	25	20	1699	1359	2786
9	IRRIGATION DEMAND	6 LITERS/SQM OF TOTAL GREEN AREA (10987. SQM)							65922		
	Total					5710			222103	570269	785291
	Say IN KL								302	550	755



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUBJECT: - HYDRAULIC CALCULATION FOR DOMESTIC WATER SUPPLY

S No.			Water Demand			Total water demand ltr /day	Peak water demand@3 of daily water demand ltr /day	Peak Water Demand	Length of Pipe	Effective Length (actual length+ 25%)	Proposed line dia.	Velocity in m/sec	Frictional head losses	Total Frictional head losses	Fitting Loss @ 10% of pipe length	Total Head Loss	Commulative Frictional head losses	Ground level			Hydraulic Level			Terminal Head
	Line No																	24	Start	End	24	Start	End	
			Self	Prev.	Total																			
	From	To	9	10	11	15	16	17	18	19	20	21	22	23										
			LPD	LPD	LPD	LPD	LPD	LPM	Mtr	Mtr	MM	Mtr/sec	Mtr/Mtr	Mtr										
1	1	2	96544	0	96544	96544.0	289632	201.1	5	6	80	0.800	0.01213	0.0758	0.08338	0.08338	0.600	0.600	4.600	4.517	3.917			
2	2	4	96544	96544	96544	96544.0	289632	201.1	91	114	80	0.800	0.01213	1.3796	1.51752	1.51752	0.600	0.600	3.600	2.082	1.482			
3	3	4	7729	0	7729	7729.0	23187	16.1	13	16	32	0.400	0.00980	0.1592	0.17515	0.17515	0.600	0.600	8.600	8.425	7.825			
4	4	6	104273	104273	104273	104273.0	312819	217.2	163	204	100	0.553	0.00472	0.09613	1.05738	1.05738	0.600	0.600	2.600	1.543	0.943			
5	5	6	0	0	0	0.0	0	0.0	14	18	32	0.000	0.00000	0.00000	0.00000	0.00000	0.600	0.600	8.600	8.600	8.000			
6	6	8	104273	104273	104273	104273.0	312819	217.2	39	49	100	0.553	0.00472	0.2300	0.25299	0.25299	0.600	0.600	4.600	4.347	3.747			
7	7	8	5437	0	5437	5437.0	16311	11.3	11	14	32	0.282	0.00511	0.0702	0.07726	0.07726	0.600	0.600	15.600	15.523	14.923			
8	8	10		109710	109710	109710.0	329130	228.6	194	243	100	0.582	0.00518	1.2570	1.38268	1.38268	0.600	0.600	3.600	2.217	1.617			
9	9	10	2000	0	2000	2000.0	6000	4.2	14	18	32	0.104	0.00080	0.0140	0.01543	0.01543	0.600	0.600	5.600	5.585	4.985			
10	10	20		111710	111710	111710.0	335130	232.7	180	225	100	0.592	0.00536	1.2060	1.32655	1.32655	0.600	0.600	4.100	2.773	2.173			
11	11	13	79520	0	79520	79520.0	238560	165.7	85	106	65	0.998	0.02328	2.4734	2.72074	2.72074	0.900	0.750	4.900	2.179	1.429			
12	12	13	86240	0	86240	86240.0	258720	179.7	16	20	65	1.082	0.02705	0.5411	0.59516	0.59516	0.850	0.750	5.850	5.255	4.505			
13	13	15	0	165760	165760	165760.0	497280	345.3	60	75	100	0.879	0.01113	0.8348	0.91830	0.91830	0.750	0.750	10.750	9.832	9.082			
14	14	15	84000	0	84000	84000.0	252000	175.0	36	45	65	1.054	0.02577	1.1595	1.27541	1.27541	0.600	0.750	5.600	4.325	3.575			
15	15	17		249760	249760	249760.0	749280	520.3	72	90	100	1.324	0.02378	2.1403	2.35438	2.35438	0.750	0.750	4.750	2.396	1.646			
16	16	17	82880	0	82880	82880.0	248640	172.7	12	15	65	1.040	0.02513	0.3770	0.41470	0.41470	0.750	0.750	4.750	4.335	3.585			
17	17	19		332640	332640	332640.0	997920	693.0	20	25	100	1.764	0.04043	1.0108	1.11183	1.11183	0.750	0.750	5.750	4.638	3.888			
18	18	19	136640	0	136640	136640.0	409920	284.7	146	183	100	0.724	0.00778	1.4204	1.56248	1.56248	0.750	0.750	4.750	3.188	2.438			
19	19	20	469280	469280	469280	469280.0	1407840	977.7	212	15	100	2.488	0.07647	1.1470	1.26172	1.26172	0.750	0.750	4.750	3.488	2.738			
20	20	UGT		580990	580990	580990.0	1742970	1210.4	40	50	150	1.369	0.01576	0.7881	0.86686	0.86686	0.750	0.750	4.750	3.883	3.133			



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUBJECT: - DOMESTIC WATER MEASUREMENT SHEET

[illegible]

PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUBJECT: - HYDRAULIC CALCULATION FOR FLUSHING WATER SUPPLY

S No.	Line No	Water Demand				Total water demand ltr /day	Peak water demand@3 of daily water demand ltr /day	Peak Water Demand	Length of Pipe	Length (actual length+ 25%)	Proposed line dia.	Velocity in m/sec	Frictional head losses	Total Frictional head losses	Fitting Loss @ 10% of pipe	Total Head Loss	Cumulative Frictional head losses	Ground level		Hydraulic Level		Terminal Head
		Self	Prev.	Total														Start	End	Start	End	
	From	To	9	10	11	15	16	LPM	Mtr	Mtr	MM	Mtr/sec	Mtr/Mtr	Mtr			Mtr	Mtr	Mtr	Mtr	Mtr	Mtr
1	1	2	52151	0	52151	52151.0	156433	108.6	5	6	50	1.106	0.03825	0.2391	0.02391	0.26297	0.25297	0.600	0.600	5.600	5.337	4.737
2	2	4	0	52151	52151	52151.0	156433	108.6	91	114	50	1.106	0.03825	4.3509	0.43509	4.78599	4.78599	0.600	0.600	5.600	0.814	0.214
3	3	4	9661	0	9661	9661.0	28983	20.1	13	16	25	0.820	0.04929	0.8010	0.08010	0.88105	0.88105	0.600	0.600	5.600	4.719	4.119
4	4	6	0	61812	61812	61812.0	185436	128.8	163	204	100	0.378	0.00179	0.3650	0.03650	0.40149	0.40149	0.600	0.600	5.600	5.199	4.599
5	5	6	0	0	0	0.0	0	0.0	14	18	25	0.000	0.00000	0.0000	0.00000	0.00000	0.00000	0.600	0.600	5.600	5.600	5.000
6	6	8	0	61812	61812	61812.0	185436	128.8	39	49	100	0.328	0.00179	0.0873	0.00873	0.09606	0.09606	0.600	0.600	5.600	5.504	4.904
7	7	8	6796	0	6796	6796.0	20388	14.2	11	14	25	0.577	0.02570	0.3533	0.03533	0.38864	0.38864	0.600	0.600	8.600	8.211	7.611
8	8	10	0	68608	68608	68608.0	205824	142.9	194	243	100	0.364	0.00217	0.5270	0.05270	0.57967	0.57967	0.600	0.600	5.600	5.020	4.420
9	9	10	2000	0	2000	2000.0	6000	4.2	14	18	25	0.170	0.00267	0.0467	0.00467	0.05135	0.05135	0.600	0.600	5.600	5.549	4.949
10	10	20	0	70608	70608	70608.0	211824	147.1	180	225	100	0.374	0.00229	0.5157	0.05157	0.56723	0.56723	0.600	0.600	5.600	5.033	4.433
11	11	13	42955	0	42955	42955.0	128865	89.5	85	106	50	0.911	0.02671	2.8375	0.28375	3.12128	3.12128	0.900	0.750	5.900	2.779	2.029
12	12	13	46585	0	46585	46585.0	139755	97.1	16	20	40	1.544	0.09201	1.8402	0.18402	2.02426	2.02426	0.850	0.750	5.850	3.826	3.076
13	13	15	0	89540	89540	89540.0	268620	186.5	60	75	100	0.475	0.00356	0.2669	0.02669	0.29355	0.29355	0.750	0.750	4.750	4.456	3.706
14	14	15	45375		45375	45375.0	136125	94.5	36	45	40	1.504	0.08764	3.9436	0.39436	4.33794	4.33794	0.600	0.750	5.600	1.262	0.512
15	15	17		134915	134915	134915.0	404745	281.1	72	90	100	0.715	0.00760	0.6842	0.06842	0.75262	0.75262	0.750	0.750	5.750	4.997	4.247
16	16	17	44770		44770	44770.0	134310	93.3	12	15	40	1.484	0.08548	1.2823	0.12823	1.41048	1.41048	0.750	0.750	3.750	2.340	1.590
17	17	19		179685	179685	179685.0	539055	374.3	20	25	100	0.953	0.01292	0.3231	0.03231	0.35542	0.35542	0.750	0.750	4.750	4.395	3.645
18	18	19	73810		73810	73810.0	221430	153.8	146	183	65	0.926	0.02028	3.7008	0.37008	4.07093	4.07093	0.750	0.750	5.750	1.679	0.929
18	19	20		253495	253495	253495.0	760485	528.1	212	265	150	0.597	0.00339	0.8991	0.08991	0.98898	0.98898	0.750	0.750	1.750	0.761	0.011
19	20	UGT		253495	253495	253495.0	760485	528.1	22	28	150	0.597	0.00339	0.0933	0.00933	0.10263	0.10263	0.750	0.750	5.750	5.647	4.897



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

EXTERNAL FIRE HYDRANT MB SHEET

S. No.	NODE NO.		No. of EFH	LENGTH (IN M)		
	FROM	TO		80 mm Dia	100 mm Dia	150 mm dia
1	1	5	1			12
2	2	3	2	76		
3	2	4	1	38		
4	3	4	1	25		
5	4	5	0		20	
6	5	9	3			134
7	6	7	2	85		
8	6	8	1	58		
9	7	8	1	37		
10	8	9	0		16	
11	9	10	3			135
12	10	11	3			122
13	11	12	3			90
14	12	16	0			42
15	13	14	2	85		
16	14	15	1	44		
17	13	15	1	30		
18	15	16	0		18	
19	16	20	1			20
20	17	18	2	90		
21	18	19	2	40		
22	17	19	1	50		
23	19	20	0		15	
24	20	24	4			172
25	21	22	3	84		
26	22	23	1	43		
27	21	23	1	49		
28	23	24	0		19	
29	24	27	1			67
30	25	26	4	208		
31	26	27	0		15	
32	27	28	3			82
33	28	29	3			99
34	29	31	1			80
35	30	31	2	44		
36	31	32	2			54
37	32	34	0			35



38	33	34	2	50		
39	34	35	3			94
40	35	36	2			106
41	36	37	1			82
42	37	38	2			81
43	38	40	0			25
44	39	40	1	15		
45	40	41	1			28
TOTAL			68	1151	103	1560
TOTAL NUMBER OF EFH = 68 Nos.						



EXTERNAL GARDEN HYDRANT MEASUREMENT SHEET

TOTAL NUMBER OF GARDEN HYDRANT = 100 Nos.



PROJECT : PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA				
SUBJECT: CALCULATION FOR WATER CURTAIN PUMP & UG FIRE WATER TANK				
A	Underground static water storage tank combined capacity for Wet riser, Yard Hydrant and Sprinklers per Set of pumps :			
1	Capacity of underground static water storage tank for one set of pumps (For Hydrant & Sprinkler as per NBC-2016). The nos. of hydrants are less than 100	-	200	KL
2	Capacity of underground static water storage tank for one set of pumps (For Hydrant & Sprinkler as per NBC-2016). The nos. of hydrants are more than 100	=	200	KL
	Total Fire storage capacity required for Hydrant & Sprinkler	=	400	KL
B	Water Curtain Pump & Water Calculation: (As per IS:15105-2021)			
1	Length of Zoning Line (Assuming length of water curtain line alround one central zone i,e 3000 sqm area) Note : The length may be reduced by providing physical partition for zones.	=	158	m
2	Linear water requirement	=	35.0	LPM/M
3	Total water requirement	=	5530	LPM
4	Min. Outlet Discharge pressure considered	=	1.4	Kg/cm ²
5	K Factor of Curtain Nozzle	=	58	
6	Design Density per sprinklers considered	=	68.627	LPM
7	Total no. of nozzles required	=	81	
8	Spacing between two consecutive nozzles	=	1.96	m
9	Required flow of water curtain pump	=	5530	LPM
10	No. of water curtain pump provided		2	Nos
11	Capacity of each water curtain pump		2765	LPM
12	Capacity of pump as available		2850	LPM
13	Proposed flow	=	5700	LPM
14	Minimum Operation time considered	=	60	Minutes
15	UG Water Storage tank capacity required (in Liters)	=	342000	Liters
16	UG Water Storage tank capacity required (in KL)	=	342	KL
17	UG Water Storage tank capacity to be proposed for water curtain	=	350	KL
	Total UG Fire Water storage tank capacity to be proposed (A+B)	=	750	KL
	Say	=	750	KL



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUBJECT: - HYDRAULIC CALCULATION OF SEWERAGE LINE

S No	Line No		Length	Water Requirement (LPD)			Daily waste water (80%) of water consumption	Total Waste water (peak=average e*3)	Total Waste water (peak = average*3)	Dia Proposed	Gradient	Velocity	Design discharge	Check for carrying capacity	Fall in (m)	Ground Level (Start)	Ground Level (End)	Invert Level (Start)	Invert Level (End)	Depth of Pipe (Start)	Depth of Pipe (End)	Average Depth
	From	To		Self	Prev.	Total																
			Mtr				LPD	LPD	LPS	mm	1/	m/Sec	LPS		Mtr.	Mtr	Mtr	Mtr	Mtr	Mtr		
1	S1	S2	25	24783	0	24783	19826.4	59479.2	0.69	200	190	0.66	10.31	OK	0.13	0.60	0.60	-0.300	-0.432	0.900	1.032	1.416
2	S2	S3	12	24783	24783	49566	39652.8	118958.4	1.38	200	190	0.66	10.31	OK	0.06	0.60	0.60	-0.432	-0.495	1.032	1.095	1.579
3	S3	S4	54	24783	49566	74349	59479.2	178437.6	2.07	200	190	0.66	10.31	OK	0.28	0.60	0.30	-0.495	-0.779	1.095	1.079	1.634
4	S4	S7	32	24783	74349	99132	79305.6	237916.8	2.75	200	190	0.66	10.31	OK	0.17	0.30	0.30	-0.779	-0.947	1.079	1.247	1.703
5	S5	S6	42.5	24783	0	24783	19826.4	59479.2	0.69	200	190	0.66	10.31	OK	0.22	0.60	0.60	-0.300	-0.524	0.900	1.124	1.462
6	S6	S7	36	24783	24783	49566	39652.8	118958.4	1.38	200	190	0.66	10.31	OK	0.19	0.60	0.30	-0.524	-0.713	1.124	1.013	1.630
7	S7	S8	26		148698	148698	118958.4	356875.2	4.13	200	190	0.66	10.31	OK	0.14	0.30	0.45	-0.947	-1.084	1.247	1.534	2.014
8	S8	S9	32		148698	148698	118958.4	356875.2	4.13	200	190	0.66	10.31	OK	0.17	0.45	0.45	-1.084	-1.253	1.534	1.703	2.386
9	S9	S10	40	4937	148698	153635	122908	368724	4.27	200	190	0.66	10.31	OK	0.21	0.45	0.45	-1.253	-1.463	1.703	1.913	2.659
10	S10	S11	40	4937	153635	158572	126857.6	380572.8	4.40	200	190	0.66	10.31	OK	0.21	0.45	0.45	-1.463	-1.674	1.913	2.124	2.975
11	S11	S12	34	4937	158572	163509	130807.2	392421.6	4.54	200	190	0.66	10.31	OK	0.18	0.45	0.45	-1.674	-1.853	2.124	2.303	3.275
12	S12	S13	53	4937	163509	168446	134756.8	404270.4	4.68	200	190	0.66	10.31	OK	0.28	0.45	0.45	-1.853	-2.132	2.303	2.582	3.593
13	S13	S15	32	4937	168446	173383	138706.4	416119.2	4.82	200	190	0.66	10.31	OK	0.17	0.45	0.45	-2.132	-2.300	2.582	2.750	3.957
14	S14	S15	13	4937	0	4937	3949.6	11848.8	0.14	200	190	0.66	10.31	OK	0.07	0.45	0.45	-0.450	-0.518	0.900	0.968	1.384
15	S15	S16	33.5		178320	178320	142656	427968	4.95	200	190	0.66	10.31	OK	0.18	0.45	0.45	-2.300	-2.476	2.750	2.926	4.213
16	S16	S17	45.5		178320	178320	142656	427968	4.95	200	190	0.66	10.31	OK	0.24	0.45	0.45	-2.476	-2.716	2.926	3.166	4.509
17	S17	S18	14		178320	178320	142656	427968	4.95	200	190	0.66	10.31	OK	0.07	0.45	0.45	-2.716	-2.789	3.166	3.239	4.786
18	S18	S19	41.5	2000	178320	180320	144256	432768	5.01	200	190	0.66	10.31	OK	0.22	0.45	0.45	-2.789	-3.008	3.239	3.458	4.968
19	S19	S20	46	2000	180320	182320	145856	437568	5.06	200	190	0.66	10.31	OK	0.24	0.45	0.45	-3.008	-3.250	3.458	3.700	5.308
20	S20	S21	39		182320	182320	145856	437568	5.06	200	190	0.66	10.31	OK	0.21	0.45	0.53	-3.250	-3.455	3.700	3.980	5.690
21	S21	S22	48		182320	182320	145856	437568	5.06	200	190	0.66	10.31	OK	0.25	0.53	0.53	-3.455	-3.708	3.980	4.233	6.097
22	S22	S23	58.5	61238	182320	243558	194846.4	584539.2	6.77	200	190	0.66	10.31	OK	0.31	0.53	0.73	-3.708	-4.016	4.233	4.741	6.603
23	S23	S24	58.5	61238	243558	304796	243836.8	731510.4	8.47	250	230	0.69	17.00	OK	0.25	0.73	0.68	-4.016	-4.270	4.741	4.945	7.213
24	S24	S25	47	66413	304796	371209	296967.2	890901.6	10.31	250	230	0.69	17.00	OK	0.20	0.68	0.68	-4.270	-4.474	4.945	5.149	7.520
25	S25	S26	27	66413	371209	437622	350097.6	1050292.8	12.16	250	230	0.69	17.00	OK	0.12	0.68	0.68	-4.474	-4.592	5.149	5.267	7.783
26	S26	S27	63	43125	437622	480747	384597.6	1153792.8	13.35	250	230	0.69	17.00	OK	0.27	0.68	0.53	-4.592	-4.866	5.267	5.391	7.962
27	S27	S28	61	43125	480747	523872	419097.6	1257292.8	14.55	300	320	0.66	23.43	OK	0.19	0.53	0.53	-4.866	-5.056	5.391	5.581	8.181
28	S28	S29	42	43125	523872	566997	453597.6	1360792.8	15.75	300	320	0.66	23.43	OK	0.13	0.53	0.58	-5.056	-5.188	5.581	5.763	8.463
29	S29	S30	44		566997	566997	453597.6	1360792.8	15.75	300	320	0.66	23.43	OK	0.14	0.58	0.58	-5.188	-5.325	5.763	5.900	8.713
30	S30	S31	60	52613	566997	619610	495688	1487064	17.21	300	320	0.66	23.43	OK	0.19	0.58	0.55	-5.325	-5.513	5.900	6.063	8.991
31	S31	S32	61.5	52613	619610	672223	537778.4	1613335.2	18.67	300	320	0.66	23.43	OK	0.19	0.55	0.58	-5.513	-5.705	6.063	6.280	9.203
32	S32	S33	17.5	52613	672223	724836	579868.8	1739606.4	20.13	300	320	0.66	23.43	OK	0.05	0.58	0.58	-5.705	-5.760	6.280	6.335	9.447
33	S33	S34	50.5	52613	724836	777449	621959.2	1865877.6	21.60	400	450	0.68	42.56	OK	0.11	0.58	0.58	-5.760	-5.872	6.335	6.447	9.558
34	S34	S35	38		777449	777449	621959.2	1865877.6	21.60	400	450	0.68	42.56	OK	0.08	0.58	0.60	-5.872	-5.956	6.447	6.556	9.725
35	S35	S36	24		777449	777449	621959.2	1865877.6	21.60	400	450	0.68	42.56	OK	0.05	0.60	0.60	-5.956	-6.010	6.556	6.610	9.861
36	S36	S37	55	63825	777449	841274	73019.2	2019057.6	23.37	400	450	0.68	42.56	OK	0.12	0.60	0.58	-6.010	-6.132	6.610	6.707	9.963
37	S37	S38	26.5	63825	841274	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.06	0.58	0.58	-6.132	-6.191	6.707	6.766	10.090
38	S38	S39	39		905099	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.09	0.58	0.58	-6.191	-6.277	6.766	6.852	10.192
39	S39	S40	49.5		905099	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.11	0.58	0.53	-6.277	-6.387	6.852	6.912	10.308
40	S40	S41	39		905099	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.09	0.53	0.58	-6.387	-6.474	6.912	7.049	10.437
41	S41	S42	18.5		905099	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.04	0.58	0.58	-6.474	-6.515	7.049	7.090	10.594
42	S42	STP	7		905099	905099	724079.2	2172237.6	25.14	400	450	0.68	42.56	OK	0.02	0.58	0.58	-6.515	-6.531	7.090	7.106	10.643

SUBJECT: - SEWERAGE MEASUREMENT SHEET



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

SUBJECT: - HYDRAULIC CALCULATION OF STORM WATER DRAINAGE LINE

S. No	Name of Drain	Length In Mts	Area To Be Drained (Sq.m Area)	Area In Acre		Design Discharge In LPS 10 CIA C=0.65, i=12.5 mm/hr	Dia of Pipe mm	Slope 1 in	Velocity (m/sec)	Pipe Carrying Capacity (LPS)	Fall (m)	Ground Level		Invert Level		Actual Depth		Average Depth (M)
				Self	Addl	Total						Start	End	Start	End	Upper End	Lower End	
1	ST01	38	100.00	0.02	0.00	0.02	200	200	0.640	10.05	0.19	0.45	0.45	-0.71	-0.900	1.16	1.35	1.26
2	ST02	23	522.00	0.13	0.02	0.15	200	200	0.640	10.05	0.11	0.45	0.45	1.35	1.238	-0.90	-0.79	-0.84
3	ST03	22	170.00	0.04	0.15	0.20	200	200	0.640	10.05	0.11	0.45	0.45	-0.79	-0.898	1.24	1.35	1.29
4	ST04	37	526.00	0.13	0.20	0.33	200	200	0.640	10.05	0.19	0.45	0.45	1.35	1.163	-0.90	-0.71	-0.81
5	ST05	43	674.00	0.17	0.33	0.49	250	260	0.651	16.30	0.16	0.45	0.45	-0.71	-0.876	1.16	1.33	1.24
6	ST06	21	225.00	0.06	0.49	0.55	250	260	0.651	16.30	0.08	0.45	0.45	1.33	1.245	-0.88	-0.80	-0.84
7	ST07	26	180.00	0.04	0.00	0.04	200	200	0.640	10.05	0.13	0.45	0.45	-0.77	-0.900	1.22	1.35	1.29
8	ST08	54	877.00	0.22	0.04	0.26	200	200	0.640	10.05	0.27	0.45	0.45	1.35	1.080	-0.90	-0.63	-0.77
9	ST09	33	622.00	0.15	0.26	0.41	200	200	0.640	10.05	0.17	0.45	0.45	-0.63	-0.795	1.08	1.25	1.16
10	ST10	57	249.00	0.06	0.96	1.02	300	350	0.634	24.20	0.16	0.45	0.45	-0.80	-0.958	1.25	1.41	1.33
11	ST11	52	694.00	0.17	1.02	1.20	400	500	0.642	45.14	0.10	0.45	0.45	1.41	1.305	-0.96	-0.86	-0.91
12	ST12	61	0.00	0.00	1.20	1.20	400	500	0.642	45.14	0.12	0.45	0.60	-0.86	-0.977	1.31	1.58	1.44
13	ST13	38	363.00	0.09	1.20	1.29	400	500	0.642	45.14	0.08	0.60	0.60	1.58	1.501	-0.98	-0.90	-0.94
14	ST14	56	220.00	0.05	1.29	1.34	400	500	0.642	45.14	0.11	0.60	0.60	-0.90	-1.013	1.50	1.61	1.56
15	ST15	20	318.00	0.08	1.34	1.42	400	500	0.642	45.14	0.04	0.60	0.60	1.61	1.573	-1.01	-0.97	-0.99
16	ST16	62	928.00	0.23	1.42	1.65	400	500	0.642	45.14	0.12	0.60	0.60	-0.97	-1.097	1.57	1.70	1.64
17	ST17	10	0.00	0.00	1.65	1.65	400	500	0.642	45.14	0.02	0.60	0.60	1.70	1.677	-1.10	-1.08	-1.09
17	ST18	63	0.00	0.00	0.00	0.00	200	200	0.640	10.05	0.32	0.45	0.30	-0.59	-0.900	1.04	1.20	1.12
18	ST19	106	0.00	0.00	0.00	0.00	200	200	0.640	10.05	0.53	0.45	0.30	-0.37	-0.900	0.82	1.20	1.01
19	ST20	27	84.00	0.02	0.00	0.02	200	200	0.640	10.05	0.14	0.30	0.30	1.20	1.065	-0.90	-0.77	-0.83
20	ST21	26	125.00	0.03	0.00	0.03	200	200	0.640	10.05	0.13	0.30	0.30	-0.77	-0.900	1.07	1.20	1.14
20	ST22	39	0.00	0.00	0.03	0.03	200	200	0.640	10.05	0.20	0.30	0.30	1.20	1.005	-0.90	-0.71	-0.80
21	ST23	18	0.00	0.00	0.05	0.05	200	200	0.640	10.05	0.09	0.30	0.30	-0.77	-0.855	1.07	1.16	1.11
22	ST24	43	259.00	0.06	0.00	0.06	200	200	0.640	10.05	0.22	0.75	0.75	-0.69	-0.900	1.44	1.65	1.54
23	ST25	69	1360.00	0.34	0.00	0.34	200	200	0.640	10.05	0.34	0.75	0.75	-0.56	-0.900	1.31	1.65	1.48
24	ST26	7	0.00	0.00	0.40	0.40	250	260	0.651	16.30	0.03	0.75	0.68	1.65	1.623	-0.90	-0.95	-0.92
25	ST27	48	386.00	0.10	0.40	0.50	250	260	0.651	16.30	0.18	0.68	0.68	-0.95	-1.131	1.62	1.81	1.71
26	ST28	36	0.00	0.00	0.00	0.00	200	200	0.640	10.05	0.18	0.60	0.68	-0.72	-0.900	1.32	1.58	1.45
27	ST29	47	286.01	0.07	0.50	0.57	300	350	0.634	24.20	0.13	0.68	0.68	1.58	1.442	-0.90	-0.77	-0.83
28	ST30	37	0.00	0.00	0.00	0.00	200	200	0.640	10.05	0.19	0.90	0.68	-0.72	-0.900	1.62	1.58	1.60
29	ST31	38	599.00	0.15	0.57	0.71	300	350	0.634	24.20	0.11	0.68	0.68	-0.77	-0.874	1.44	1.55	1.50
30	ST32	34	540.00	0.13	0.71	0.85	300	350	0.634	24.20	0.10	0.68	0.58	1.55	1.452	-0.87	-0.88	-0.88
31	ST33	36	858.00	0.21	0.85	1.06	400	500	0.642	45.14	0.07	0.58	0.53	-0.88	-0.949	1.45	1.47	1.46
32	ST34	47	994.00	0.25	0.00	0.25	200	200	0.640	10.05	0.23	0.75	0.75	-0.67	-0.900	1.42	1.65	1.53

S. No	Name of Drain		Length In Mts	Area To Be Drained (Sq.m Area)	Area In Acre			Design Discharge In LPS 10 CIA C=0.65, i=12.5 mm/hr	Dia of Pipe mm	Slope 1 in	Velocity (m/sec)	Pipe Carryin Capacity (LPS)	Fall (m)	Ground Level		Invert Level		Actual Depth		Average Depth (M)
					Self	Addl	Total							Start	End	Start	End	Upper End	Lower End	
33	ST33	ST34	70	998.00	0.25	0.00	0.25	2.00	200	200	0.640	10.05	0.35	0.75	0.75	-0.55	-0.900	1.30	1.65	1.48
34	ST34	ST35	55	636.00	0.16	0.49	0.65	5.28	300	350	0.634	24.20	0.16	0.75	0.53	1.65	1.494	-0.90	-0.97	-0.93
35	ST35	ST36	53	984.00	0.24	1.71	1.95	15.86	500	700	0.630	73.20	0.08	0.53	0.53	-0.97	-1.045	1.49	1.57	1.53
36	ST36	ST38	23	1048.00	0.26	1.95	2.21	17.96	500	700	0.630	73.20	0.03	0.53	0.60	1.57	1.537	-1.05	-0.94	-0.99
37	ST37	ST38	36	564.00	0.14	0.00	0.14	1.13	200	200	0.640	10.05	0.18	0.70	0.60	-0.72	-0.900	1.42	1.50	1.46
38	ST38	ST44	9	0.00	0.00	2.35	2.35	19.10	500	700	0.630	73.20	0.01	0.60	0.60	-0.94	-0.950	1.54	1.55	1.54
38	ST39	ST40	43	566.00	0.14	0.00	0.14	1.14	200	200	0.640	10.05	0.22	0.65	0.65	-0.69	-0.900	1.34	1.55	1.44
39	ST40	ST41	33	238.00	0.06	0.14	0.20	1.61	200	200	0.640	10.05	0.17	0.65	0.65	1.55	1.385	-0.90	-0.74	-0.82
40	ST41	ST43	47	0.00	0.00	0.20	0.20	1.61	200	200	0.640	10.05	0.24	0.65	0.65	-0.74	-0.970	1.39	1.62	1.50
41	ST42	ST43	22	629.00	0.16	0.00	0.16	1.26	200	200	0.640	10.05	0.11	0.65	0.65	-0.79	-0.900	1.44	1.55	1.50
42	ST43	ST44	15	153.00	0.04	0.35	0.39	3.18	200	200	0.640	10.05	0.08	0.65	0.60	1.55	1.475	-0.90	-0.88	-0.89
43	ST44	Out Fall	117	0.00	0.00	2.74	2.74	22.28	500	700	0.630	73.20	0.17	0.60	0.60	-0.88	-1.042	1.48	1.64	1.56
44	ST45	ST46	53	814.00	0.20	0.00	0.20	1.63	200	200	0.640	10.05	0.26	0.55	0.55	-0.64	-0.900	1.19	1.45	1.32
45	ST46	ST48	80	0.00	0.00	0.20	0.20	1.63	200	200	0.640	10.05	0.40	0.55	0.53	1.45	1.053	-0.90	-0.53	-0.71
46	ST47	ST48	52	1530.00	0.38	0.00	0.38	3.07	200	200	0.640	10.05	0.26	0.75	0.53	-0.64	-0.900	1.39	1.43	1.41
47	ST48	ST49	68	150.00	0.04	0.58	0.62	5.01	250	260	0.651	16.30	0.26	0.53	0.58	-0.53	-0.789	1.05	1.36	1.21
48	ST49	ST50	15	803.00	0.20	0.62	0.81	6.62	250	260	0.651	16.30	0.06	0.58	0.58	1.36	1.306	-0.79	-0.73	-0.76
49	ST50	ST51	64	861.00	0.21	0.81	1.03	8.35	300	350	0.634	24.20	0.18	0.58	0.55	-0.73	-0.913	1.31	1.46	1.38
50	ST51	ST52	19	0.00	0.00	1.03	1.03	8.35	300	350	0.634	24.20	0.05	0.55	0.55	1.46	1.410	-0.91	-0.86	-0.89
51	ST52	ST53	66	954.00	0.24	1.03	1.26	10.26	400	500	0.642	45.14	0.13	0.55	0.58	-0.86	-0.992	1.41	1.57	1.49
52	ST53	ST55	32	632.00	0.16	1.26	1.42	11.53	400	500	0.642	45.14	0.06	0.58	0.58	1.57	1.503	-0.99	-0.93	-0.96
53	ST54	ST55	47	459.00	0.11	0.00	0.11	0.92	200	200	0.640	10.05	0.23	0.60	0.58	-0.67	-0.900	1.27	1.48	1.37
54	ST55	ST57	66	729.00	0.18	1.53	1.71	13.92	400	500	0.642	45.14	0.13	0.58	0.58	-0.93	-1.059	1.50	1.63	1.57
55	ST56	ST57	37	911.00	0.23	0.00	0.23	1.83	200	200	0.640	10.05	0.18	0.75	0.58	-0.72	-0.900	1.47	1.48	1.47
56	ST57	ST59	42	232.00	0.06	1.94	2.00	16.21	400	500	0.642	45.14	0.08	0.58	0.58	1.48	1.391	-0.90	-0.82	-0.86
57	ST58	ST59	78	1227.00	0.30	0.00	0.30	2.46	200	200	0.640	10.05	0.39	0.75	0.58	-0.51	-0.900	1.26	1.48	1.37
58	ST59	ST60	10	0.00	0.00	2.30	2.30	18.68	500	700	0.630	73.20	0.01	0.58	0.58	-0.82	-0.830	1.39	1.41	1.40



PROJECT: - KRISUMI WATERFALL RESIDENCE (PHASE- 4 & 7) AT GURUGRAM, HARYANA											
SUBJECT: - STORM WATER MEASUREMENT SHEET											
S No.	Line No		Dia. of Pipe MM	Length of line Mtr	LENGTH OF PIPES						
	From	To			200 mm	250 mm	300 mm	400 mm	500 mm	600 mm	700 mm
1	ST01	ST02	200	38	38	-	-	-	-	-	-
2	ST02	ST03	200	22.5	23	-	-	-	-	-	-
3	ST03	ST04	200	22	22	-	-	-	-	-	-
4	ST04	ST05	200	37	37	-	-	-	-	-	-
5	ST05	ST06	250	42.5	-	43	-	-	-	-	-
6	ST06	ST10	250	21	-	21	-	-	-	-	-
7	ST07	ST08	200	26	26	-	-	-	-	-	-
8	ST08	ST09	200	54	54	-	-	-	-	-	-
9	ST09	ST10	200	33	33	-	-	-	-	-	-
10	ST10	ST11	300	57	-	-	57	-	-	-	-
11	ST11	ST12	400	51.5	-	-	-	52	-	-	-
12	ST12	ST13	400	61	-	-	-	61	-	-	-
13	ST13	ST14	400	38	-	-	-	38	-	-	-
14	ST14	ST15	400	56	-	-	-	56	-	-	-
15	ST15	ST16	400	20	-	-	-	20	-	-	-
16	ST16	ST17	400	62	-	-	-	62	-	-	-
17	ST17	Out Fall	400	10	-	-	-	10	-	-	-
17	ST18	ST20	200	63	63	-	-	-	-	-	-
18	ST19	ST20	200	106	106	-	-	-	-	-	-
19	ST20	ST23	200	27	27	-	-	-	-	-	-
20	ST21	ST22	200	26	26	-	-	-	-	-	-
20	ST22	ST23	200	39	39	-	-	-	-	-	-
21	ST23	Out Fall	200	18	18	-	-	-	-	-	-
22	ST24	ST26	200	43	43	-	-	-	-	-	-
23	ST25	ST26	200	68.5	69	-	-	-	-	-	-
24	ST26	ST27	250	7	-	7	-	-	-	-	-
25	ST27	ST28	250	47.5	-	48	-	-	-	-	-
26	ST28A	ST28	200	36	36	-	-	-	-	-	-
27	ST28	ST29	300	46.5	-	-	47	-	-	-	-
28	ST29A	ST29	200	37	37	-	-	-	-	-	-
29	ST29	ST30	300	37.5	-	-	38	-	-	-	-
30	ST30	ST31	300	34	-	-	34	-	-	-	-



PROJECT: KRISUMI PHASE 05, 06 & 08 AT SECTOR-36A, GURUGRAM, HARYANA

MB SHEET FOR ROAD					
S. No.	LINE NO		Name of Road	7.5 M Wide Road	6 M Wide Road
	FROM	TO			
1	R01	R02	Driveway	28	
2	R01	R03	Driveway	32	
3	R02	R03	Driveway	33	
4	R02	R04	Driveway	170	
5	R03	R04	Driveway	145	
6	R04	R05	Driveway	66	
7	R04	R08	Driveway	48	
8	R05	R06	Driveway	44	
9	R06	R07	Driveway	19	
10	R07	R08	Driveway	66	
11	R07	R13	Driveway	74	
12	R08	R09	Driveway		44
13	R09	R10	Driveway	70	
14	R10	R11	Driveway	35	
15	R09	R11	Driveway	60	27
16	R11	R12	Driveway	36	
17	R13	R14	Driveway	60	
18	R14	R15	Driveway	42	
19	R12	R15	close	68	
20	R16	R16A	Entry Road		48
21	R16	R17	Fire Tender Road		10
22	R17	R18	Fire Tender Road		99
23	R18	R19	Fire Tender Road		96
24	R19	R20	Fire Tender Road		32
25	R20	R21	Fire Tender Road		25
26	R20	R22	Fire Tender Road		93
27	R21	R22	Fire Tender Road		29
28	R21	R22	Fire Tender Road		265
			TOTAL	1096	768
Grand Total Road Area				8220	4608
Add 10% for curves and Drop offs				9042	5068.8
Total Length of the Road				1096	768
KERB LENGTH (Both Side Of The Road)				2192	1536



S. No.	LINE NO		Name of Road	7.5 M Wide Road	6 M Wide Road
	FROM	TO			
Add 10% for Drop offs, parking width, curves				2411.2	1689.6
			TOTAL	11453.2	6758.4

